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ABSTRACT

Little is known about the process by which healthy families resolve everyday problems. Families with an adolescent diabetic must handle the usual adolescent problems as well as disease management problems, and must meet both the needs of the adolescent and those of the rest of the family. Phasing rationally is a term used to describe the orderly pattern which people go through as they progress from identifying a problem to eventually implementing an action and evaluating the outcome. This study analyzes the pattern of problem solving interaction (phasing rationally) for three adequately functioning families with well-controlled diabetic adolescents. The mother, father, and diabetic adolescent child in three intact families were subjects. Families discussed one salient and one nonsalient problem solving vignette as a family problem solving situation. The vignettes dealt with completing household tasks and with friends. Problem solving phases were identified by observation and interaction analysis of family problem solving in a laboratory setting. In addition, demographic data and several measures of family functioning, family strengths, and perceived family problem solving roles and patterns were also collected. The results indicated that family members engaged more frequently in orientation and identification early in the family coping process, with more frequent alternative generation, evaluation, and decision being associated with later phases of the process. The noteworthy pattern of behavior across the entire problem solving process was found to be information seeking and sharing. (Five pages of references and data tables are included.) (ABL)

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PHASING RATIONALLY IN FAMILIES WITH A DIABETIC ADOLESCENT

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Abstract

How do families organize themselves in problem solving? It it random or do families phase rationally? These questions provided the basis for the present study. The paper discusses the pattern of problem solving interaction for three adequately functionning families with a well controlled adolescent diabetic. Identification behaviors prepresented the greatest percentage of all behaviors. Using the percentage of phase specific behaviors across different phases of the problem solving process, some support is provided for a non-random and rational model of problem solving. The results support continued research with a larger sample.

PHASING RATIONALLY IN FAMILIES WITH A DIABETIC ADOLESCENT

The family is an obvious group for whom problem solving effectiveness holds importance. Despite the considerable recent interest in problem solving, decision-making and stress and coping, scholars know little about the actual process which families go through in resolving a problem. Part of this gap is a result of the difficulty of capturing on-going family interaction; part reflects the imprecision of our measuring tools; and still another portion has to do with combining the existing information into a meaningful whole.

Studies in the area have concentrated largely on the effectiveness with which families cope with major crises, but relatively little is known about the adequacy of solutions to the steady flow of small problems that require constant attention (Turner, 1970). In addition, knowledge of how "healthy" or adequately functioning families engage in problem solving is meagre.

The lack of research evidence in this area has resulted in an inability to gain clarity regarding the internal complexities of family problem solving. It has also limited the development of specific family life interventions as well as health promotions which attempt to assist or support families in accepting, managing or resolving issues in their daily life.

The adolescent stage of the family life cycle is one which presents many opportunities for family problem solving. Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson (1983, p. 342) in their

recent national study of 1000 families, 261 of which were at the adolescent stage, suggest that "No stage of the family life cycle seems to be more stressful than the adolescent stage." They propose that part of the stress comes from the changing demands and preferences of adolescents as well as the lack of congruence between the perceptions of parents and adolescents regarding issues and family dynamics.

Families with an adolescent diabetic must handle the usual developmental problems associated with adolescence as well as those associated with managing the disease. At the present time diabetes cannot be cured but it may be managed in order to prevent or delay undesirable effects of the disease. The management of diabetes for young diabetics involves balancing three factors: diet, exercise and insulin. The management of diabetes mellitus for adolescents has a strong family component (Sargent & Baker, 1983). The family may serve as a support group for the adolescent in acknowledging the social, psychological and physical aspects of the disease. It is also within the family that management procedures for the disease are learned and practiced. Thus, diabetes affects basic family activities: eating and activity patterns, as well as social relationships. The major task of a family with an adolescent diabetic, however, is to control the disease so that the adolescent's development may proceed without undue interference. In addition, however, the family must also function at an appropriate level to meet the needs of other family members.

Sargent and Baker (1983) have summarized patterns of family

interaction which are associated with good control of diabetes. These involve emotional supportiveness among family members, parental role flexibility, effective communication patterns, effectiveness in actually controlling child's behavior, effectiveness in getting the child to medical care after emergence of symptoms, involvement of the father in the initial educational process following diagnosis and joint decision-making. It would appear from current research on adolescent diabetes that the development of adequate family and individual problem solving patterns are a key factor in positive adjustment of adolescent diabetics (Sargent & Baker, 1983; Galatazer, Amir, Gil, Karp, & Laron, 1982; Grwinn, Olex, Whitman, & Crawford, 1984; Allen, Tennan, McGrade, Afleck, & Ratzan, 1983; Marteau & Greene, 1984).

How families react to the problems they face are important in their resolution. Once behavioral patterns are established they are difficult to change. Minuchin (1974), demonstrated however that even when families react in a rigid, overprotective fashion they can be taught through therapy to reverse this pattern. Thus we need to know more about family problem solving patterns in order to make available appropriate support services to families. It is apparent that the value of studying how families proceed in problem solving (phasing rationally) depends upon the possibility that individuals in families differ in rationality and that the degree to which they are rational can be changed (Klein & Hill, 1979).

The purpose of the present paper is to discuss the pattern of problem solving interaction (phasing rationally) for three

adequately functioning families with well controlled diabetic adolescents. Phasing rationally describes the orderly pattern which people go through as they progress from identifying a problem to eventually implementing an action and evaluating the outcome.

The question which provides the focus for the present analysis is: How do adequately functioning three-person family groups which include a well controlled adolescent diabetic, proceed to resolve typical adolescent stage specific problems? More specifically, what kind of problem solving patterns do families use, a rational pattern or is their behavior random? If they use a rational pattern, is the pattern general or situation specific? How different are families' behaviors at each phase of the process?

A Conceptual View of Problem Solving

Problem solving has been conceptualized as a process which includes a series of interdependent parts. Some theorists have called these parts steps; others phases. The distinction appears to be that steps tend to divide the problem solving process more finely, whereas phases are more general, often incorporating several steps.

Bales and Strodtbeck (1951) and Raush, Barry, Hertel and Swain (1974) have used phases to describe the problem solving process. Bales and Strodtbeck (1951) hypothesized three successive phases in group problem solving including a first phase of orientation, during which problems are initially identified and begin to be resolved. Evaluation, the second phase, includes

appraisal of various courses of action and finally the control phase, involves attempts to secure agreement and reach a solution.

Raush et al. (1974) had a similar conceptualization of the progress of resolving a conflict situation. They defined three phases in the progression of an interpersonal conflict. The first consists of an introductory phase which includes acts prior to the introduction of the conflict issue. Secondly, the conflict phase includes acts that begin with the first statement of the conflict issue and continues until the introduction of an agreed upon resolution. Lastly, resolution and postresolution include acts that begin with the achievement of a resolution and subsequent discussion.

Other researchers have differentiated parts of the problem solving process in more detail by defining steps which individuals or groups follow from identification of a problem to resolution (Turner, 1970; Aldous & Ganey, 1982; Kieren, Vaines, & Badir, 1984). While the number of steps generally varies, most step-wise conceptualizations include the following: identification of the problem, obtaining the necessary information, production of possible solutions, selection of a strategy for performance, performance of an action, and evaluation and revision of the outcome and process (Brim, Glass, Lavin, & Goodman, 1962).

The present conceptualization of the problem solving process is one which includes 8 steps organized into four phases (Kieren, Vaines & Badir, 1984).

Place Figure 1 about here

The four phases are: (a) Phase I, Introduction, which includes acts prior to the proposal of the first alternative or decision; (b) Phase II, Alternative Generation, which includes acts beginning with the first statement of an alternative and continuing until an evaluation is begun; (c) Phase III, Evaluation, which are acts beginning with the first statement of an evaluation and continuing until a decision is made; and (d) Phases IV, Decision and Post Resolution, which includes acts beginning with the first proposal of a decision and ending with either the proposal of a new alternative, or evaluation or another decision.

The model assumes the actual pattern in families might vary. For example, the pattern may be different when the problem is new or repeated, or when an individual as opposed to the entire family is the problem solving unit. Steps may be skipped or repeated.

In addition, problem solving in families is on-going. There is seldom just one problem being worked on at a time. Thus, a conceptualization of the on-going process might in fact be a series of interconnected loops as shown in Figure 2.

Place Figure 2 about here

Phasing Rationally In Family Groups

Most conceptualizations of problem solving have come from the study of individuals or ad hoc groups. The individual problem solving process is assumed to be basically similar to the manner in which groups organize to solve problems.

The original idea that groups follow certain phases in problem

solving and that problem solving effectiveness would be increased if a prescribed order were followed came from the work of Dewey (1910) and Elliott (1928). Bales and Strodtbeck (1951) cautioned, however, that it is one thing to predict an order under certain conditions and another to prescribe an ideal order based upon value judgments. Conclusive evidence which would support the ideal patterns proposed in theory for family groups has not yet been collected.

The research reported by Bales and Strodtbeck (1951), for example, supported a non-random sequencing of problem solving activity. The samples studied however, were not family groups.

It has been well documented that the family is a unique problem solving group (Tallman, 1970; Weick, 1971). The differences noted by these authors however, have tended to focus upon the structure, environment and resources available to the family rather than how the family proceeds in a step-wise manner.

Several other authors have suggested that the rational model of problem solving may be inappropriate for natural groups like families (Schutz & Luckmann, 1973; Aldous, 1971; Aldous & Ganey, 1982). Aldous (1971) proposed that Simon's (1957) notion of bounded rationality has a better fit in that families behave rationally but within a certain expressed range of alternatives and outcomes. She hypothesized that families would seldom explicitly engage in defining the situation as a problem, planning a strategy for goal achievement and finally taking action. Instead, since they are primarily organized for group maintenance, they would handle only the most disturbing aspects of the

situation through whatever techniques they have previously identified as being effective. Since families are rarely even aware of the problem solving process in which they are involved Aldous argues they are "less problem oriented than solution oriented" (1971, p. 267). She hypothesized therefore, that only families with adequate economic and educational resources would have the "luxury" of attaining a certain level of awareness or competence in rationally approaching a problem.

Aldous goes on to argue that family groups experience another complication in problem solving. Some of the long-range and more important problems which families face do not allow the individuals or group much choice. An example is the resolution of a conflict situation which demands a certain kind of personality change or motivation in order to effect a solution. Aldous would propose that if a researcher could really assess on-going everyday family problem solving, rather than laboratory based problem solving, the picture might reveal much more "problem facing" than "defining" or "solving" (1971, p. 269).

Testing various aspects of the rationality model for family solving is in its infancy. Reiss (1981), Gottman (1979), and Raush et al. (1974) provide some support for a rational approach. Aldous and Ganey's (1982) test of problem definition and member's satisfaction with the process tends to challenge a rational model for families. More research is necessary before a definitive statement or adapted model may be developed.

METHOD

The present analysis formed part of a multimethod pilot study of two groups of families with adolescent members. The sample studied and procedures used in the present analysis are a subset of this pilot study.

Sample

The mother, father and oldest adolescent child in three intact families constituted the sample for the present analysis. In all families, the oldest child in the household was an adolescent who had been diagnosed as a diabetic at least one year prior to the study.

The complete pilot sample consisted of nine families, five families with a diagnosed diabetic adolescent and four families, matched by age and gender of adolescent, with no member having a diagnosed chronic health condition. All families in this study were paid volunteers. The three families in the present analysis were identified through medical doctors or a local church. All three adolescents were deemed to be in good control, none having reported more than one episode of falling outside the controlled range for the technique they used to measure metabolic control.

Research Instrumentation and Procedures

The method used to identify problem solving phases was observation and interaction analysis of family problem solving in a laboratory setting. A revealed difference technique modeled after Olson and Ryder's Inventory of Marital Conflicts (1970) was developed to serve as the primary problem solving tasks for the

family groups (Kieren, Hurlbut, Lehman, & Gora, 1985). Typical problem solving situations were identified through the general adolescent literature and the literature addressing family relations issues for teenagers who have diabetes. Nine situations were chosen and problem solving vignettes were written addressing these issues. Separate parallel forms were written for male and female adolescents and for adolescents with and without diabetes. Respondents were asked to independently answer a series of forced answer questions about the vignette. These questions were: What is the problem? Has a situation like this ever occurred in your family? Who is most responsible for the problem? Which solution is the best for this problem? Who should make the final decision in this situation? A sample situation follows:

> Sue, age 15, and Grace, age 15, are good friends. They have gone to school together since kindergarten. Sue's parents had always liked Grace but they have heard from a neighbor that Grace was picked up by the police last week for drinking. They want Sue to stop seeing Grace because she might be a bad influence on her. Sue thinks her parents don't understand. She's old enough to choose her own friends. She tells her parents that they are treating her like a baby and refuses to talk about it any more.

INDIVIDUAL ANSWER FORM

PROBLEM SITUATION	WHAT IS THE PROBLEM?	HAS A SITUATION LIKE THIS EVER HAPPENED IN YOUR FAMILY?	WHO IS MOST RESPONSIBLE FOR THE PROBLEM?			WHAT SHOULD THEY DO?	WHO SHOULD MAKE FINAL DECISION IN THIS SITUATION?			
			FATHER	MOTHER	CHILD		FATHER	MOTHER	CHILD	BOTH PARENTS
1A Conflict regarding friends	A. Rob's decision to keep Chuck as a friend. B. Deciding how much independence Rob should have.	A. Yes B. No				A. Rob should stop seeing Chuck. B. The family should discuss it more. C. Rob should make his own decision about friends.				

Individual responses to the question, Has a situation like this ever occurred in your family?, provided information about the salience of the situation for the family. A situation was deemed to be salient if two or more family members reported it, or a situation like it, had occurred in their family and if there were differences of opinion in handling the situation by at least two family members. Based on this information, two salient vignettes were chosen for the family to discuss as a family problem solving situation. The task was to arrive at a family consensus on all of the questions posed. In addition, all families discussed a third situation involving friends, since a recent Canadian study (Bibby & Posterski, 1985) indicated that friends are one of the most important issues for teenagers today. This also gave the researchers at least one common situation to complete a comparison across families. In this analysis two situations were analyzed, friends and one other problem. For all three families, the second situation discussed related to completing household tasks. The family was given up to 10 minutes to discuss each situation. All interactions were videotaped in a laboratory setting. Demographic data as well as several measures of family functioning, family strengths, and perceived family problem solving roles and patterns were also collected. FACES II (Olson, Bell, & Portner, 1982) and a single question allowing each member to assess the family's interactional health were used to validate the state of family functioning. Family strengths were measured with Olson, Larsen and McCubbin's (1982) 12 item scale.

Coding

Training Reliability. The family problem solving interaction was coded using a 26 category taxonomy. It was developed by Kieren (1985) and modeled after the code developed for conflict resolution by Raush et al. (1974). The specific codes were established to reflect the step-wise conceptualization of problem solving presented previously.

Training procedures were developed (Kieren & Munro, 1985) and two coders were involved in an extensive training process. Interaction was coded without transcription using an OS3 Data Coding device (Holm, 1981). Since three family members were observed, coding was relatively complex. Videotaping the behavior allowed for several passes of the data and also assisted the researchers in assessing reliability of the coding. The use of data logging equipment without transcription or time intervals prevents the determination of item-by-item reliability since the unit being coded may not be the same for each coder. Thus, reliability was assessed in a three stage process: achievement of sufficiently high coder accuracy, sufficiently high agreement on the units to be coded, and sufficiently high Kappa estimates of reliability (.7 or above) (Cohen, 1960).

The average coder accuracy for two coders on the codes was 98%. Coder accuracy refers to how well an individual coder understands and recognizes the coding categories. Average unit agreement was 98%. Inter-coder reliability, assessed by Cohen's Kappa, and estimated over all 26 codes, was .75. This compares favorably to .67 reported by Raush et al. (1974) on their similarly complex behavioral code.

Analyzing the Data

Several authors suggest that the two problems which surface after data has been obtained from a reliable and valid instrument are deciding which measures to use for statistical summary and analysis and choosing appropriate statistical tests (Klein & Hill, 1979; Sackett, Ruppenthal, & Gluck, 1978).

The present analysis is primarily concerned with the sequencing of problem solving behaviors into phases over the course of solving a particular problem. Frequencies of behavioral codes within a phase were calculated using seven categories to summarize the behaviors. The seven categories that summarized the 26 behavior codes were: fragments, identification of the problem, alternatives, evaluation, resolution mechanisms, decisions, and metaproblem solving.

The data was analyzed using procedures from SAS Basics (1982) and involved descriptive statistics of frequencies of events. A profile for each family was created for each problem solving task.

Once coded, the phases were operationalized as follows:

1. Phase I began with the beginning of the discussion and ended at the code immediately preceding the beginning of phase II.
2. Phase II began with the first proposed alternative code and ended at the code immediately preceding phase III.
3. Phase III began with the first code that represented any one of the following: evaluation activities, explores consequences, positively evaluates a specific alternative, negatively evaluates a specific alternative, evaluates solution and process, positively evaluates potential ability,

negatively evaluates potential ability, assesses problem, agreement, or disagreement. It ended at the code immediately preceding phase IV.

4. Phase IV began and ended with the first decision code or consecutive decision codes.

Problem solving sequence would not necessarily involve all four phases. For example, Phase I could be skipped if a family's interaction began with the proposal of an alternative code. In this case the family's phasing began at phase II. No other phase could be skipped. There could, however, be repetitions of the phasing loop for each unique problem solving situation since each situation contained mini-problems.

RESULTS

Demographic Characteristics of Sample

Each family had unique characteristics, however no family appeared to be an outlier. Family one was the only family in which the adolescent had been diagnosed a diabetic for a relatively short time (1.3 years). The adolescents in families two and three had been diagnosed diabetic 10 years ago. Family one also was a family with a single earner whereas the other parents were both employed. The adolescent in family two was male while in families one and three the adolescents were female. Unlike the other families, the mother in family three had a child from a previous marriage who was much older than the diabetic adolescent, however this child never lived as a member of the

present family. The characteristics of the three families are summarized in Table one.

Insert Table 1 about here

The data indicated that the three families are healthy families. Six of the nine participants rated the question, "We are a healthy family," with strongly agree, the two mothers from families one and three rated it with moderately agree, and only the father from family one answered neither agree nor disagree. No participant disagreed with this statement. The family distance from center scores for FACES II indicated that families one, two, and three were in the balanced range with z scores of .67, 1.17, and .90, respectively. In calculating these scores, mean scores on four of the mother's items on the FACES II questionnaire were utilized for missing data to allow the calculation of a family score. This mother had difficulty answering paper and pencil questions and did not complete all the questions on the FACES II questionnaire.

The Problem Solving Situations

None of the families rated the problem solving situation relating to friends as a salient problem. The situation relating to household tasks was salient to all families. To solve the friend's situation, family one spent 5 minutes 45 seconds, family two spent 8 minutes 37 seconds, and family three spent 2 minutes 37 seconds. Family one, two, and three spent 8 minutes 1 second, 4 minutes 28 seconds, and 2 minutes 37 seconds respectively.

Nonsequential Behaviors. Looking at total behaviors, behaviors collapsed across families and phases, identification behaviors clearly represented the greatest percentage of behaviors with 44 percent of all behaviors. Resolutions and evaluation behaviors were second with 18 percent and 17 percent, respectively. Alternatives and decisions were in a third group with eight and seven percent, respectively, and the percent of fragments were fourth (6 percent). There were no metaproblem responses.

There was variance in the relative percentages of the different categories when the two situations were analyzed separately and when the three families were analyzed separately. The changes were only between the relative position of evaluation and resolution or between the relative positions of alternatives and decisions. It appears that even though there was some variance between situations and families, the majority of the families' interactions were focused on trying to identify the problem. Secondly, the families tried to resolve the problem and evaluate their ideas, and thirdly they offered alternatives and decisions.

Sequential Behavior. Problem solving that consists of rational phasing demands a regular and identifiable pattern of behaviors within each phase and unique patterns between the different phases. In order to isolate such a pattern, phase specific behaviors are discussed with reference to two criteria. Behaviors are discussed in terms of which categories represented the largest proportion of behaviors for a specific phase and in terms of a comparison between the category percentage for the specific phase and the total category percentage for the category

summed across all four phases. A behavior is considered phase specific when the category percentage for the phase is greater than the category percentage summed across all phases.

The data from table two indicates that Phase one behaviors, when summed across situations and families, consisted predominately of identification behaviors and contained more identification behaviors than any other phase. Phase two was best characterized by alternatives and resolutions. Both types of behaviors, represented a comparatively high percentage of all phase two behaviors, both percentages are above the total category average, and the percentages for these two behaviors are higher in phase two than in any other phase. Even though phase two did contain a higher percentage of identification behaviors than other types of behaviors in that phase, the percentage represented seven percent fewer identification behaviors than was the average across all four phases. Phase three, like phase one, was characterized by a predominance of identification behaviors but, in addition, phase three was characterized by a high percentage of evaluations. In fact, the highest percentage of all evaluation behaviors occurred in phase three.

Insert Table 2 about here

To summarize, although identification behaviors frequently occurred throughout the problem solving process they best characterized a large proportion of phase one and three behaviors. In fact, the introduction phase, phase one, consisted predominately

of interactions which focused on identifying the problem and no other behaviors were predominate. The alternative phase, phase two, consisted predominately of interactions which focused on finding alternatives and resolutions. The evaluation phase, phase three, consisted predominately of responses which focused on identifying the problem and also those which focused on evaluating the ideas.

Analyzing each situation separately, for phase one, the nonsalient problem, friends, also consisted mainly of identifications with a very high percentage of identification behaviors (61%). Phase two again was best characterized by alternatives and resolutions. The pattern for phase three was slightly different than it was for the collapsed data. Phase three had proportionately fewer identification behaviors and proportionately more resolution behaviors. The phasing for the salient problem was different than that for the nonsalient problem. In fact, for the salient problem, household tasks, only phase three conformed to the general description of phasing behaviors for the collapsed data. It can be noted from table three that the families did phase differently for the two situations.

Insert Table 3 about here

For both situations, alternatives characterized a proportionately high percentage of phase two behaviors and evaluations characterized a proportionately high percentage of

phase three behaviors. The two situations, however, appeared to be characterized by somewhat different phasing. Phase one for the nonsalient problem had a proportionately greater percentage of identification behaviors than did phase one for the salient problem. Phase one for the salient problem had a proportionately higher percentage of resolution behaviors than it had for the nonsalient problem. Phase two for the nonsalient problem had proportionately more resolution behaviors and fewer decision behaviors than the corresponding phase for the salient problem. It appears that the families solved a nonsalient problem by identifying the problem during the first phase, offering alternatives and resolutions in phase two and evaluations in the third phase. The decision follows in the fourth phase. For a salient problem, the families did try to identify the problem during phase one but the families also offered many resolutions in this first phase. As with the nonsalient problem, families used phase two to offer alternatives however the families also offered proportionately more decisions. In fact, the families offered more decisions in earlier phases throughout the process of solving the salient problem than they offered while solving the nonsalient problem.

The data also indicated that each of the three families used slightly different phasing while solving the nonsalient problem. The three families used similar behaviors during phase one and phase two but not necessarily during phase three. Figures three, four, and five present a comparison of the three families' profile for this nonsalient problem for phases one, two, and three,

respectively. From figure three, it is apparent that all three families used a high percentage of identification behaviors for phase one. Even though there was variance between the families for the other categories of behavior for phase one, none of these behaviors were used often. For phase two, family two used proportionately more alternatives and proportionately fewer resolutions than the other families but still all three families divided their interactions between identifications, alternatives and resolutions. It appears that the three families are quite similar for phase one and phase two. Phase three, on the other hand, shows large variance between the families and the patterns for these families are difficult to describe.

Insert Figures 3, 4, 5 about here

DISCUSSION

Health professionals have recently begun to emphasize the broader definition of health, one that goes beyond that of physical health. In addition, in the management and treatment of many clinical conditions the treatment of the whole person, physiologically as well as psychologically is beginning to be recognized. The family can be an asset or a liability in the treatment process depending upon the family members' understanding or definition of the situation, the resources they have available, the level of functioning of the group prior to the onset of the condition and the available supports for the family. In some

conditions such as diabetes mellitus, the role of the family is crucial in the management of the disease and in the achievement of total health, especially for adolescents.

The individual adolescent diabetic and his or her family must develop problem solving strategies which allow for solution of physical problems related to diabetes as well as social/psychological problems related to diabetes and normal adolescent development. Johnson and Rosenbloom (1982, p. 361) suggest: "Diabetes interferes with most of the goals of normal adolescence. ...the desire for greater independence may make diabetes management a battleground between the teenager and parent."

Tattersall (1981) has criticized much of the research on family and parental behaviors and child reactions in that it has been based upon a deficit model of parenting and negative child behavior. He encourages a more process oriented model which focuses on family strengths and successful family coping strategies. Minuchin and his coworkers (1974, 1975, 1978) using a systems framework have studied the interrelationship between physiological reactions of the diabetic child and family interactions. Their studies indicated that families of brittle diabetics were characterized by overprotection, rigid family interaction patterns, lack of family conflict resolution patterns and psychological enmeshment. The development of more flexible conflict resolution patterns was crucial in improving episodes of poor control.

The results of this study of a small sample of well functioning families with an adolescent diabetic member is an example of a strength-oriented study of family coping processes. The process described across situations and families is not random, phases can be identified and the most frequently occurring behaviors within the phases are suggestive of a rational model of problem solving. This data indicates that family members do engage more frequently in orientation and identification of the problem early in the process. More frequent alternative generation, evaluation and decision are associated with latter stages of the process. The data, however, illustrates that the behaviors which occur within a particular phase are not limited to a single behavior. The noteworthy pattern of behavior across the entire problem solving process is information seeking and sharing. It is high, particularly in phases 1 and 3. Information gathering and sharing about the problem appears to take on a very important role in problem solving, even for a group like a family group which has a history and has been expected to share a certain base line of information, values, experiences, and goals. The literature on shared perception and consensus helps us explain this finding. There is an increasing body of literature which has challenged the concept of a "family reality" or "family perception" (Ferber, 1955; Booth & Welch, 1978; Jaco & Sheppard, 1975; Kieren, 1981; Olson, et al., 1983; Montgomery & Fewer, 1985). A better term is "family realities". Each person perceives a situation as an individual. It is only through

interaction and shared understanding that a family consensus about facts, problems, goals alternatives or solutions can be achieved. These well functioning families appeared to utilize information search and sharing behaviors throughout the problem solving process. To gain such a family consensus we would argue that such behavior contributes to greater problem solving effectiveness, whether measured by solving the problem or evaluating the process and outcome as satisfactory. All families completed the tasks. Satisfaction with the solution and process was rated as either satisfactory or very satisfactory except for one mother in one situation who rated her satisfaction as above average. Further research with a full range of family functioning and diabetic control must determine whether the pattern of information gathering noted in this study is in fact an important factor in achieving high levels of adolescent management of the disease.

Another important analysis of family problem solving interaction involves identifying the pattern of sending and receiving different kinds of messages. Subsequent analysis of this data will analyze more carefully the pattern of sending and receiving messages across phases as well as who is responsible for different types of behavior within and across phases. Research with adolescent diabetics has suggested that involvement of the adolescent in family decision-making may have a relationship to increased control (Sargent & Baker, 1983; Grwinn, et al., 1984). Participation rates as well as frequency of assertive behaviors in family problem solving situations may provide another helpful behavioral measurement of adolescent involvement in family problem solving.

The finding that each family has a unique phase three behavior pattern may suggest the need for more in-depth analysis of that phase. A number of different types of evaluation activities are categorized in the behavioral code. Intra-family as well as inter-family and situational analyses may help detail the specific processes that different families employ in judging the suggested alternatives.

Klein and Hill (1979) have suggested that the nature of the problem solving task with which families are faced has a relationship to problem solving effectiveness. In this case, salience of the problem may be relevant. This data would suggest that when families encounter a situation similar to one they have encountered before, they engage in less identification behaviors, perhaps relying on the old family response patterns. While this simplifies the number of unique strategies a family must derive, it may also limit the number of creative solutions (Weick, 1971, Aldous, 1971). Overall, alternative generation was not a large proportion of the family member's problem solving behavior. This may however be an underestimate since the problem tasks presented the families with a series of forced answer choices from which they were asked to select.

Chronic illnesses like diabetes are family diseases. In order to fully employ the family as a unit of health promotion or facilitation, family interaction researchers need to unlock the mysteries of the complex processes which make a difference in the management of diseases like diabetes. The family's ability to resolve problems and to engage in decision-making appears to be

one specific aspect of family interaction which can make a difference. The whole notion of using family intervention in the management of chronic illness depends upon two premises: a) differences can be identified in how family groups interact which can result in different levels of management of the disease and b) these patterns of interaction can be changed by an intervention program. Minuchin's et al. work (1978) has given some evidence of the usefulness of family therapy in changing disruptive family patterns. There are also a growing number of family educational and enrichment programs as well as medical treatment programs involving the whole family that are being developed to build and strengthen the problem solving and coping abilities of families who must handle the problems of managing a chronic illness (Barrett, 1984).

The current study was hypothesis generating rather than hypothesis testing. In addition, it purposely focused upon a narrow group of families with diabetic adolescents: Those which were both intact and well functioning. The adolescent was also rated as being in "good control". This group is an important one to include in subsequent studies even though there is evidence that many adolescent diabetics have less adequate metabolic control and may more likely live in single parent families than in two parent families. Intervention programs have too often looked for difficulties in families rather than building upon their strengths. The group of families in the current analysis provide the kind of data which will help practitioners understand the full range of possibilities for family coping and hopefully to help

them distinguish between the specific aspects of family interaction which can make the most difference in managing a chronic illness as well as meeting the needs of the other family members.

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Table 1
Demographic Characteristics of Sample

Families	Number of Years With Diabetes	Gender of Adolescent	Ages F = Father M = Mother A = Adolescent	Gender of Next Sib	Age of Next Sib	Number of Siblings in Household	SES*	Earner Single = 1 or Dual = 2	Years Married
01	1.3	F	F = 52 M = 45 A = 17	M	13	1	02	1	23
02	12.0	M	F = 44 M = 43 A = 17	M	16	2	02	2	17
03	10.0	F	F = 52 M = 54 A = 15	M	32	none	03	2	17

*Note: SES was determined by Hollingshead's five level social strata according to his Four Factor Index of Social Status. Social Strata 1, major business and professional is the highest; social strata 2, medium business, minor professional technical is second highest; and social strata 3, skilled craftsmen, clerical, sales worker is midpoint on the scale.

TABLE 2

PERCENT OF PHASE BEHAVIORS

Summed Across Both Revealed Difference Problems
Summed Across Phase Repetitions
Summed Across Three Families

Behavior Category	Phases				
	1 Introduction	2 Alternative	3 Evaluation	4 Decision	Total % All Phases
Fragments	10	3	5	NA	6
Identification	49	37	46	NA	44
Alternatives	NA	32	7	NA	8
Evaluation	14	NA	25	NA	17
Resolution	18	21	17	NA	18
Decision	8	7	NA	100	7
Meta	0	0	0	NA	0
Phase Frequency Behavioral Acts	182	71	230	16	499

Scores are in percentages; cell frequencies divided by column frequencies.
Scores represent the percent of behavioral acts within each phase.
Phase frequency reports total behavior acts.

TABLE 3

PERCENT OF PHASE BEHAVIORS

Revealed Difference Problems: Friends and Household Tasks
Summed Across Phase Repetitions
Summed Across Three Families

Behavior Category	Phases 1 Introduction	2 Alternative	3 Evaluation	4 Decision	Total % All Phases
Fragments	11 / 10	5 / 0	4 / 6	NA	6 / 7
Identification	61 / 43	31 / 44	43 / 50	NA	44 / 44
Alternatives	NA	36 / 28	9 / 3	NA	11 / 5
Evaluation	15 / 14	NA	27 / 23	NA	18 / 15
Resolution	6 / 24	26 / 16	16 / 19	NA	15 / 20
Decision	6 / 9	3 / 13	NA	100 / 100	6 / 8
Meta	0 / 0	0 / 0	0 / 0	NA	0 / 0
Phase Frequency Behavioral Acts	62 / 120	39 / 32	129 / 101	10 / 6	240 / 259

Note 1. Scores are for two problems: Friends / Household

Note 2. Scores are in percentages; cell frequencies divided by column frequencies. Scores represent the percent of behavioral acts within each phase. Phase frequency includes total behavioral acts.

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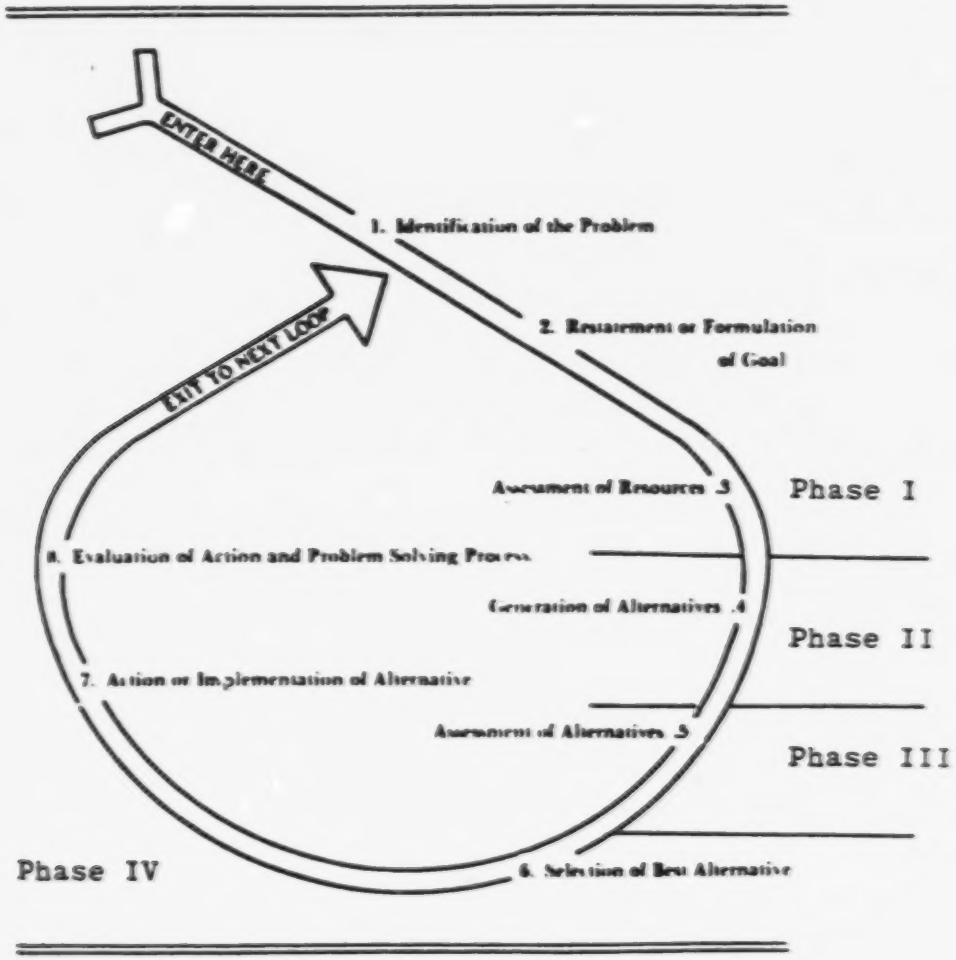
ENTER HERE
1. Identification of the Problem
2. Restatement or Formulation of Goal
Assessment of Resources .3
Phase I
8. Evaluation of Action and Problem Solving Process
Generation of Alternatives .4
Phase II
7. Action or Implementation of Alternative
Assessment of Alternatives .5
Phase III
Phase IV
6. Selection of Best Alternative
EXIT TO NEXT LOOP

FIGURE 1: The Problem Solving Loop

From: Kieren, D., Vaines, E., & Badir, D. (1985). The Home Economist as a Helping Professional. Winnipeg, MAN: Frye, p. 85.

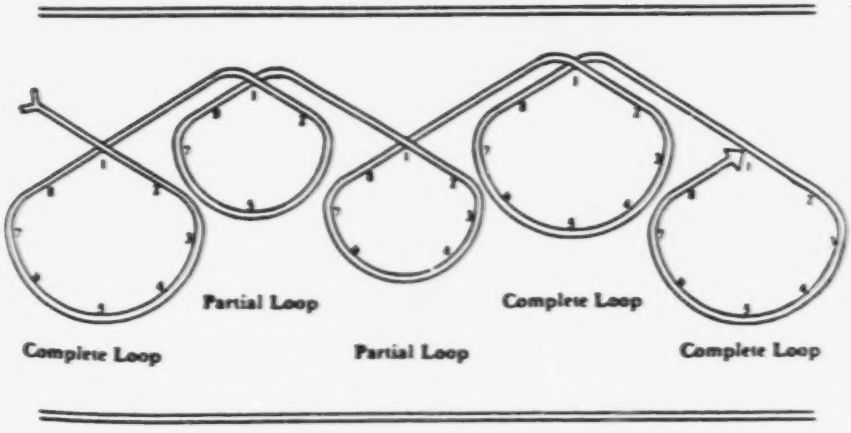

Figure 2: Individual Problem Solving over a Short Time Span

From: Kieren, D., Vaines, E., & Badir, D. (1985). The Home Economist as a Helping Professional. Winnipeg, MAN: Frye, p. 87.

FIGURE 3

Revealed Difference Problem: Friends
Summed Across Phase Repetitions
Phase One

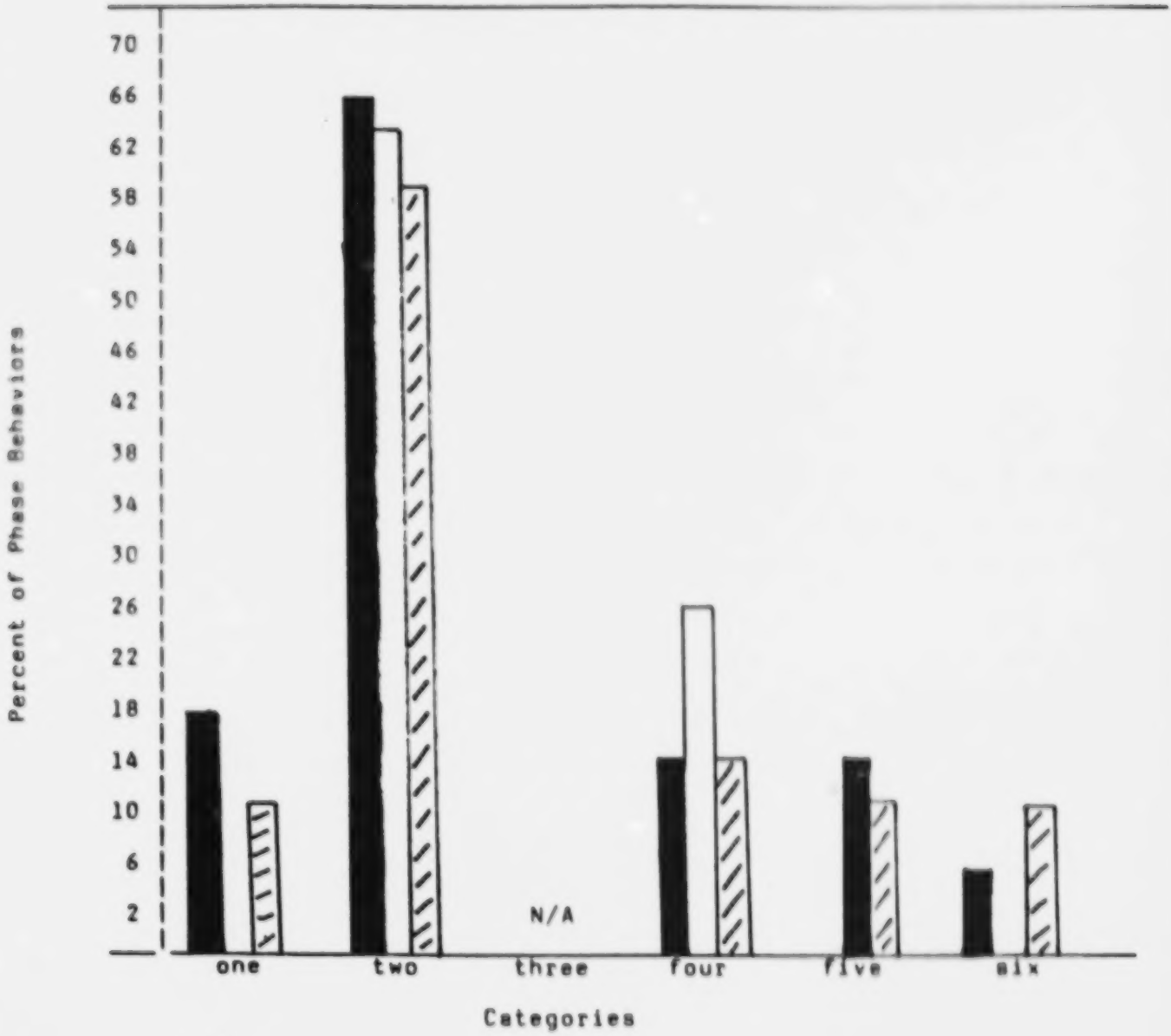

FIGURE 4
Revealed Difference Problem: Friends
Summed Across Phase Repetitions
Phase Two

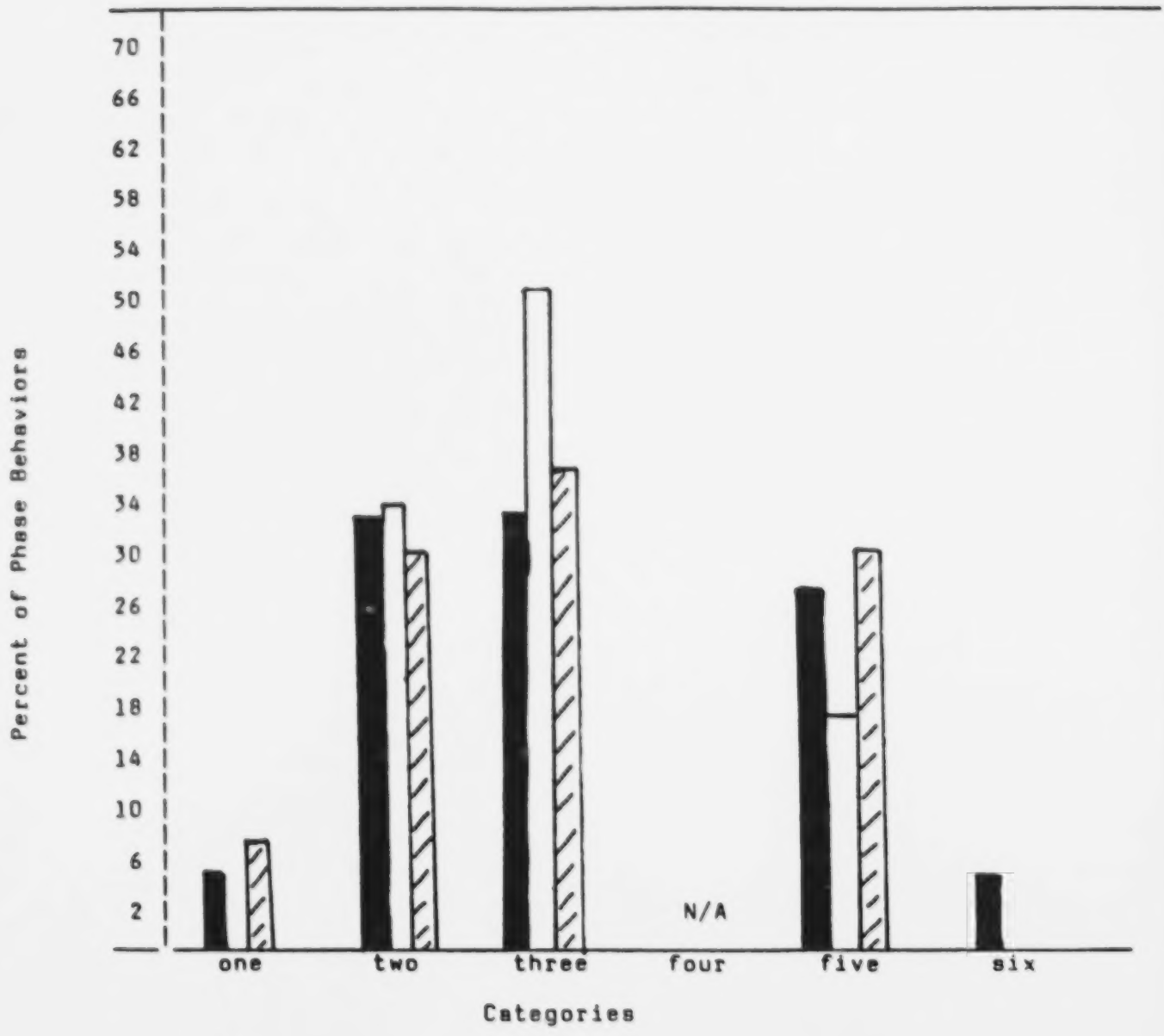

FIGURE 5

Revealed Difference Problem: Friends
Summed Across Phase Repetitions
Phase Three